

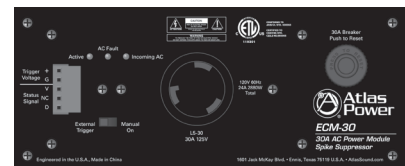
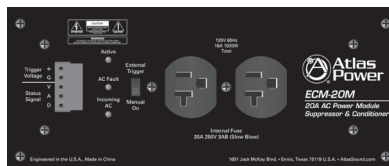
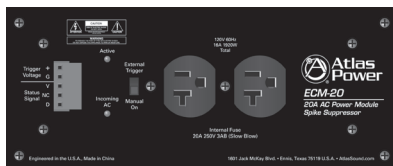


## ECM-RACEWY6/3/1 Module Housing

## ECM-20, ECM-20M, & ECM-30 Sequencer Modules



ECM-RACEWY6



1601 Jack McKay Blvd. • Ennis, Texas 75119 U.S.A.  
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**Table of Contents**

Important Safety Instructions.....	3
Introduction .....	5
ECM-RACEWY Key Features .....	6
ECM Module Key Features .....	6
Applications .....	6
Raceway ECM Housing .....	7
Raceway AC Inlet Knockouts .....	7
Raceway AC Ground Stud.....	8
Raceway Mounting Rails.....	8
Dimensions .....	8
ECM-20/ECM-20M Front Panel Features.....	9
ECM-30 Front Panel Features .....	10
Differences Between Electrical Control Modules (ECM).....	11
ECM Internal Features .....	11
ECM-3BP Module Blank Cover Plate .....	12
ECM-ACIN Wire Kit .....	12
Wiring the ECM Modules.....	12
System Wiring Configurations .....	13
Connecting the ECM Module to an ECS-6RM Controller .....	13
ECM Data and Wire Considerations .....	15
Operating an ECM Module without a Controller .....	15
Troubleshooting .....	16
ECM-RACEWY Specifications .....	17
ECM-20/ECM-20M Specifications .....	18
ECM-30 Specifications .....	19
Warranty .....	20





### Important Safety Instructions



The lightning flash with arrowhead symbol within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this device near water.
6. Clean only with dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other device (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the device.
11. Only use attachments/accessories specified by the manufacturer.
12. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the device. When a cart is used, use caution when moving the cart/device combination to avoid injury from tip-over.
13. Unplug this device during lightning storms or when unused for long periods of time.
14. Refer all servicing to qualified service personnel. Servicing is required when the device has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled, or objects have fallen into the device, the device has been exposed to rain or moisture, does not operate normally, or has been dropped.
15. **WARNING:** To reduce the risk of fire or electric shock, this device should not be exposed to rain or moisture and objects filled with liquids, such as a vase, should not be placed on this device.
16. To completely disconnect this equipment from the mains, disconnect the power supply cord plug from the receptacle.
17. The mains plug of the power supply cord shall remain readily operable.



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**WARNING When The Device Is In Use**

- To prevent electric shock, do not remove the product cover as there are high voltage components inside. Refer all servicing to Atlas Sound.
- Should any of the following irregularities occur during use, immediately switch off the power, disconnect the power cord from the AC outlet and contact Atlas Sound. Do not attempt to continue operation with the product as this may cause fire or electric shock:
  - Smoke or strange smell coming from the unit.
  - If the product falls or the case is damaged.
  - If water or any metallic objects falls into the product.
  - If the power supply cord is damaged in any way.
  - If the unit is malfunctioning.
- Do not insert or drop metallic objects or flammable materials into the ventilation holes of the product's cover, as this may result in electric shock or fire.
- Do not place any containers with liquid or metallic objects on the top of the product. If any liquid spills into the unit, fire or electric shock may result.
- Never operate this product or touch the power supply cord during an electrical storm, electric shock may result.
- Never exceed the power rating on the product when connecting equipment. Fire and/or property damage may result.
- Operate the product only with the voltage specified on the unit. Fire and/or electric shock may result if a higher voltage is used.
- Do not modify, kink, or cut the power cord. Do not place the power cord in close proximity to heaters and do not place heavy objects on the power cord, including the product itself, doing so may result in fire or electrical shock.
- Ensure that the safety ground terminal is connected to a proper ground. Never connect the ground to a gas pipe as a catastrophic disaster may result.
- Be sure the installation of the product is stable, avoid slanted surfaces as the product may fall and cause injury or property damage.



**CAUTION When Installing The Product**

- Plugging in or unplugging the power cord with wet hands may result in electric shock.
- Never move the unit with the power cord plugged into the wall, as damage to the power cord may result.
- When unplugging the cord from the wall, grasp the plug, NOT the cord.
- Never install this product in humid or dusty locations, nor in direct sunlight, near sources of heat, or in areas where sooty smoke or steam are present. Fire and electric shock may result.
- Keep all sides of the unit at least 3½" away from objects that may obstruct air flow to prevent the unit's internal temperature rise.



**CAUTION When The Product Is In Use**

- Never place heavy objects on the product, causing it to fall and/or break, resulting in personal injury and property damage. In addition, the product itself may fall and cause injury and property damage.
- Contact Atlas Sound for instructions on cleaning the inside of the unit. Large accumulations of dust inside the unit may result in heat buildup and fire.
- Ensure that the power supply plug is securely plugged into the wall outlet. Never allow dust to accumulate on the power plug or inside the wall outlet.
- When cleaning the unit or the unit is not to be operated for an extended period, unplug the power cord from the wall.



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### Introduction

Thank you for purchasing the Atlas Power Electrical Control Module Raceway system. This manual is divided up into two main sections, the ECM-RACEWY housing and the ECM-20, ECM-20M, and ECM-30 modules. This manual will explain which ECM module to choose for your application, how to configure it, and how to wire it. **Note:** For your safety all electrical wiring must be done by a qualified electrician. Many of the items required to connect to the raceway system are standard electrical industry components.

There are three segments for a remote 120V AC Mains sequenced system to fully operate.

1. The Electrical Control Modules (ECM) turn ON or OFF the 120V AC Mains to the devices that are plugged into it.
2. ECM-RACEWY housing supports and encloses the ECM-20, ECM-20M, and ECM-30 modules for safety.
3. An ECS-6RM controller activates the ECM modules. See the ECS-6RM manual for more information. This manual covers the ECM modules and the ECM-RACEWY.

The ECM-RACEWY housings support up to six ECM-20, ECM-20M, or ECM-30 modules. There are four ½" and ¾" dual knockouts that support standard electrical conduit components for wiring 120V AC mains into the raceway housing from the electrical panel. ECM-3BP blank plates can be purchased to cover unused ECM module slots. Two blank plates are provided with the ECM-RACEWY6.

The ECM-RACEWY6 holds up to six ECM modules and can be mounted into most racks that have at least a 60" internal height. The ECM-RACEWY3 holds up to three ECM modules and requires an internal height of 31" while the ECM-RACEWY1 for a single ECM module requires a 14" internal height. The raceways have breakaway mounting tabs to conveniently secure the raceways in most applications.

The Atlas Power ECM-20 and ECM-20M are 20A Power Conditioner and AC Spike Suppressor Electrical Control Modules (ECM) that are designed to be placed up to 1000 ft away from an ECS-6RM Controller. The ECM-30 is a 30A Power Conditioner and AC Spike Suppressor Electrical Control Modules (ECM).

All ECM modules feature AC spike suppression. AC Spikes, or Transients, are commonly caused by lightning storms or utility power plant grid switchovers. The amount of energy that can be injected into the power system can be immense with voltages reaching 6kV or amperage peaks of 3000A. These spikes are very fast and usually only last for a very short period of time. To protect against this potential problem, incoming AC Mains have special suppression circuitry to eliminate the unwanted energy. This circuitry is very fast and can suppress unwanted energy within a nanosecond, while sustaining the suppression for up to 2 milliseconds, thus ensuring virtually trouble free protection. High and low AC Main line voltages are another major contributor to equipment failures. The ECM modules support Extreme Voltage Shutdown (EVS) circuitry so the module can be shut off during low and high AC Line conditions.

High line, or surges, usually are a slower steady state rise in voltages from 128VAC and up. They can be caused by fluctuations from the utility company's power lines or industrial equipment that is on the same power leg of the building's incoming AC turning on/off.

Low line, or brownouts, occur when the AC Mains drops below 107VAC. This is caused by the utility company not being able to supply enough power during heavy utility consumption times like heat waves or from voltage drops in AC lines due to long transmissions. The ECS-6RM will inform you if any of these conditions occur. Extreme variances in Unstable AC Mains voltage are one of the main reasons for equipment failure.

The ECM-20M features noise filtering for removing unwanted Radio Frequency Interference (RFI) that is commonly introduced into the AC lines by nearby radio transmitters or wireless products. EMI filters are also incorporated to reduce Electromagnetic Interference (EMI) generated by items such as electric motors, switching power supplies, and lightning. The benefit of these filters can be seen on video products or audibly by reducing static pops and external signal interference.

The ECM-20 and ECM-30 do not support the same current monitoring or EMI/RFI Filter feature as the ECM-20M, ECM-20SH, and ECM-15SH models. However, they do support AC Spike and Surge Suppression, AC Mains Voltage monitoring, EVS circuitry and Remote Activation. Refer to appropriate ECM Module for full details.



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## **ECM-RACEWY** **ECM-20, ECM-20M, & ECM-30**

## **Owner's Manual**

### **ECM-RACEWY Key Features**

- ECM-RACEWY6 Holds Up To 6 ECM-20, ECM-20M, or ECM-30 Modules
- ECM-RACEWY3 Holds Up To 3 ECM-20, ECM-20M, or ECM-30 Modules
- ECM-RACEWY1 Holds 1 ECM-20, ECM-20M, or ECM-30 Module
- 4 AC Inlet Locations
- Dual Knockouts ½" & ¾"
- 4 (ECM-RACEWY6 & ECM-RACEWY3) or 2 (ECM-RACEWY1) Breakaway Rail Mounting Tabs
- Blank Module Cover Plates for ECM-RACEWY6 (2 included)
- 2 Locations for Chassis Grounding Using 10-32 Screws

### **ECM Module Key Features**

- Manual/Auto On/Off Switch
- Incoming AC Present LED
- Active LED
- AC Fault LED
- Clamping Spike & Surge Suppression EVS Circuitry
- AC Mains Voltage & Current Monitoring (Voltage Only for ECM-20)
- EMI & RFI Filtering (ECM-20M Only)

### **Applications**

The Atlas Power Electrical Control Module Raceway system were designed with features that allow it to be used in a variety of applications. The sequenced outputs allow the turning of equipment On and Off in a particular order, to eliminate an in-rush of current and audible pops that often occur with non-sequenced power strips. It also can be used solely for protection against lightning strikes or voltage surges. If fuzzy video or frequent static pops occur, the AC power conditioning will eliminate or reduce those inconveniences. The following are just a few examples of applications in which the Atlas Power Electrical Control Module Raceway system can be used:

- Restaurants
- Houses of Worship
- Schools
- Home Theaters
- Office Buildings
- Sports Bars
- Industrial Facilities



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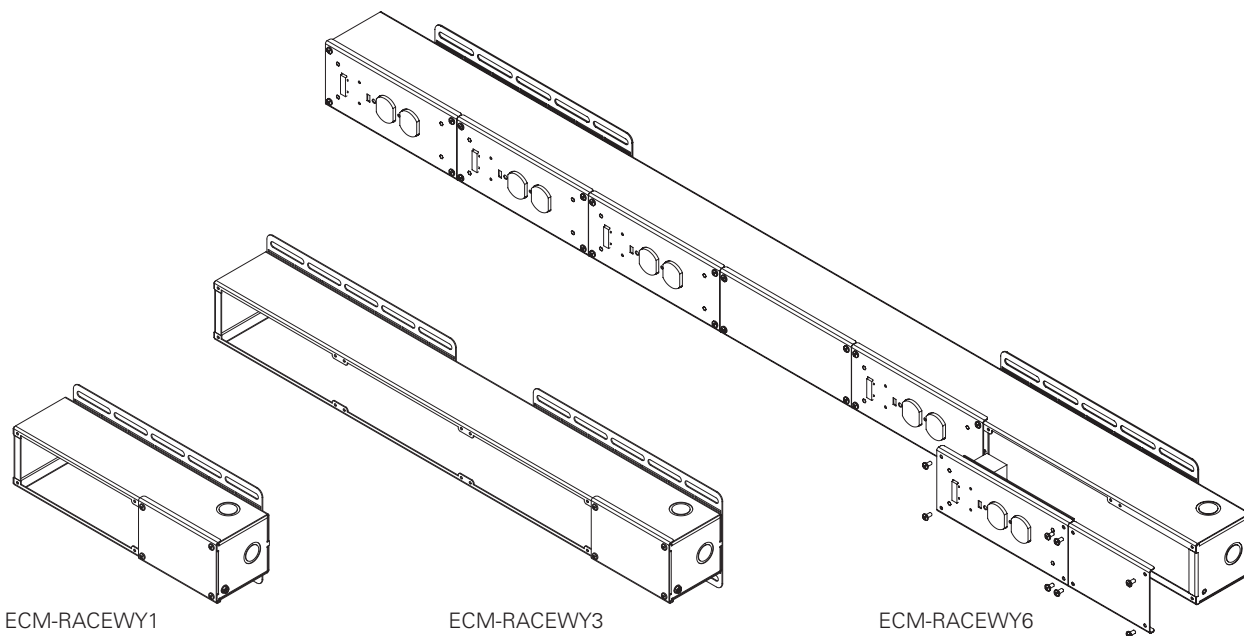
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## Raceway ECM Housing

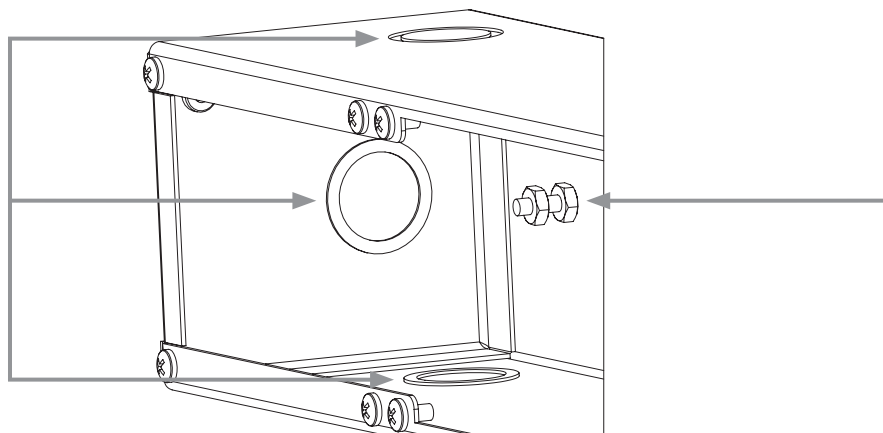
The ECM-20, ECM-20M, and ECM-30 require an electrical housing. The ECM-RACEWY6 holds up to 6 ECM modules, while the ECM-RACEWY3 holds up to 3 ECM modules, and the ECM-RACEWY1 holds 1 ECM module. There are standard 1/2" and 3/4" dual knockouts on the bottom of the raceway to support standard electrical mounting hardware. Since the Raceways can house multiple ECM modules there can be separate 20A or 30A AC legs coming into the Raceway for a total of 120A of power distribution or it could be as simple as one 20A or 30A leg. **Note:** All electrical wiring must be done by a certified electrician.

For safety, there should be no open slots and all cover plates must be secured tightly. Blank cover plates are available if all slots will not be used. Top and bottom mounting tabs are incorporated to mount inside an Atlas Sound Rack. Rack mounting tabs are designed to be bent over or breakaway, if not needed. Simply bend the tab back and forth until the tab breaks away. Be careful of sharp edges.



## Raceway AC Inlet Knockouts

The ECM-RACEWY can support up to four AC conduit inlets. There are three knock outs on the bottom and one on the top of the raceway. Each inlet supports a double knock out size supporting standard USA electrical fittings of 1/2" and 3/4". The figure below is an illustration of the bottom of the raceway.



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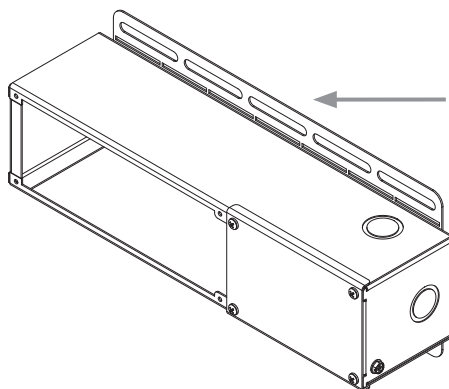


### Raceway AC Ground Stud

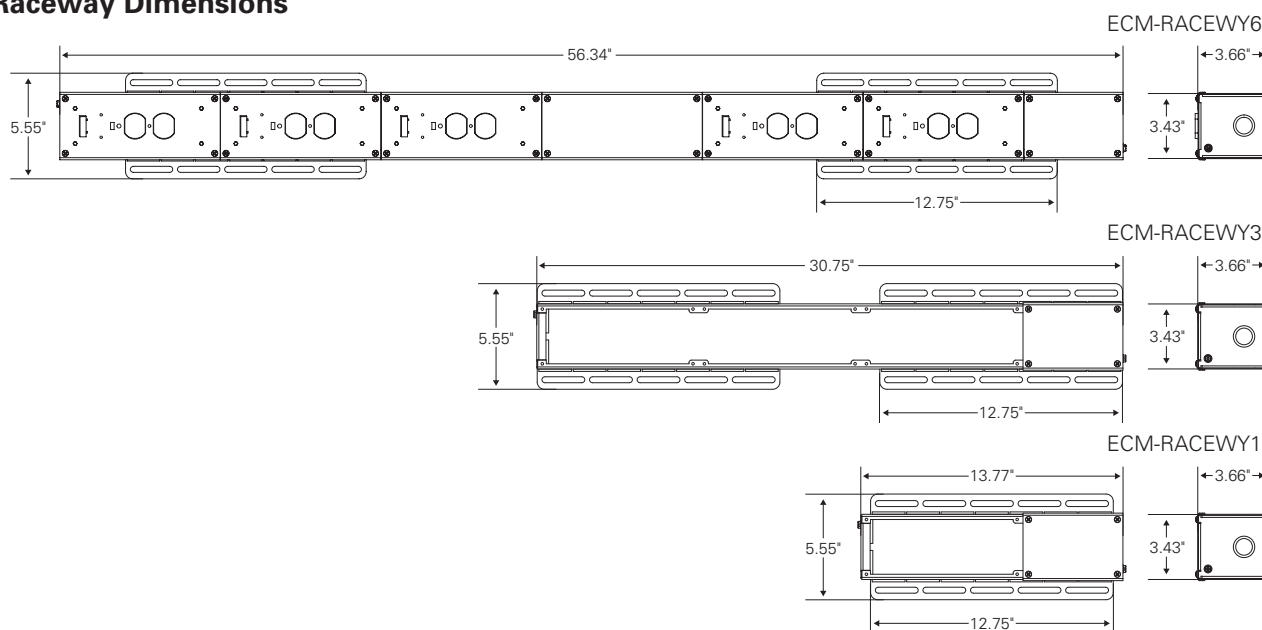
The ECM-RACEWY has an internal AC Mains chassis stud for GROUND connection. The stud size is  $\frac{1}{8}$ " x 1". A nut and star washer are also supplied. The second figure on page 7 shows the internal location of the stud.

### Raceway Mounting Rails

The ECM-RACEWY can be mounted into most racks. The raceways have bendable mounting tabs that make them convenient to secure in most applications. There are four rails to secure the ECM-RACEWY6 and ECM-RACEWY3, and two rails to secure the ECM-RACEWY1 to a cabinet or wall. Multiple slots are provided for ease of installation. Tabs may be bent over or broken away. To break the rail tabs off, simply bend the rail tabs back and forth with a pliers until the metal separates. **Note:** After the metal breaks, sharp corners may need to be filed to prevent injury.



### Raceway Dimensions



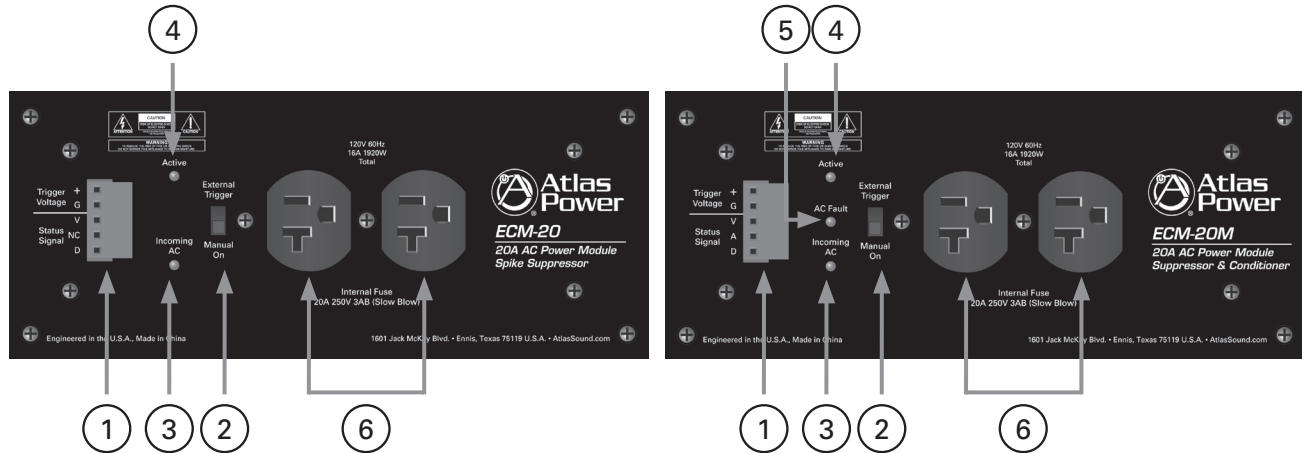
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## ECM-20 & ECM-20M Front Panel Features



### 1. Trigger/Status Port Pin Identification

All signals are of low voltage and current. DO NOT MISS WIRE or damage may occur.

- A. (+) Requires a minimum of 5 - 24V DC to activate the module with 5mA of current. **Note:** The DCV can be supplied from any source. The EVS protection requires the ECS-6RM for operation.
- B. G = Circuit Ground, Must be of the same circuit as the DCV source.
- C. V = AC Voltage Status Signal, This signal reports back to the ECS-6RM the Incoming AC Mains Voltage to the ECM module.
- D. A = AC Current Status Signal, This signal reports back to the ECS-6RM the AC Mains Current draw at the ECM module.  
**Note:** Not available on ECM-20 type module.
- E. D = Fault Status Signal, reports to the ECS-6RM fault conditions of a ECM module.

### 2. External Trigger/Manual On Switch

The ECM-20SH and ECM-20 have a manual override switch allowing them to be used as a local Power Conditioner and Surge Suppressor. For it to be remotely monitored and activated the switch must be in the "External Trigger" position.

### 3. Incoming AC LED

This LED will illuminate Red when the ECM has incoming AC power present at the module. This LED must be On to operate.

**Note:** If this LED is not illuminated check the following: 1) The unit is plugged in, 2) The AC Mains Breaker feeding the AC leg to the ECM module is Off, 3) The internal fuse has been damaged. This should only be inspected by an authorized technician.

### 4. Active LED

This LED will illuminate Green when the ECM module has sensed the proper DCV to trigger activate the power On circuit.

**Note:** If connected to the ECS-6RM and the EVS circuit is activated this LED will not be on. The Channel Status LED on the ECS-6RM will flash, indicating a problem, and will not turn the ECM module On until the AC Mains voltage is stable.

### 5. AC Fault LED

This LED will illuminate Red if damage to the Spike Suppression circuit occurs. This LED will not turn Off until repaired. Have the ECM module inspected by a qualified technician. **Note:** Not available on ECM-20 module.

### 6. AC Mains Outlet

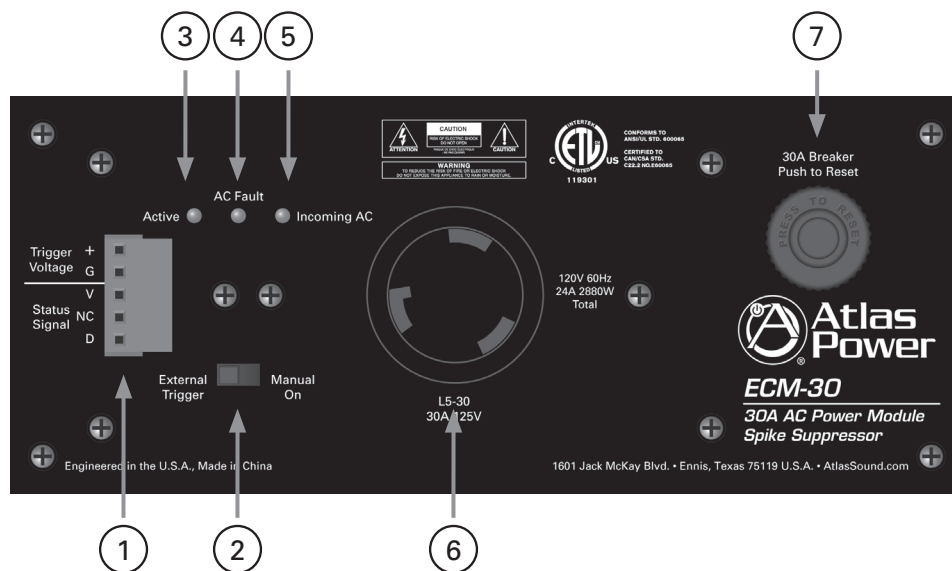
Two 120V AC 15A outlets.



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### ECM-30 Front Panel Features



#### 1. Trigger/Status Port Pin Identification

All signals are of low voltage and current. **DO NOT MISS WIRE** or damage may occur.

- A. (+) requires a minimum of 5–24V DC to activate the module with 5mA of current. **Note:** The DCV can be supplied from any source. The EVS protection requires the ECS-6RM for operation.
- B. G = Circuit Ground. Must be of the same circuit as the DCV source.
- C. V = AC Voltage Status Signal. Reports the Incoming AC Mains Voltage to the ECM module back to the ECS-6RM.
- D. NC = No Connection
- E. D = Fault Status Signal. Reports any fault conditions of an ECM module to the ECS-6RM.

#### 2. External Trigger/Manual On Switch

The ECM-30 has a manual override switch allowing it to be used as a local Power Conditioner and Surge Suppressor. For remote monitoring and activation, the switch must be in the “External Trigger” position.

#### 3. Active LED

This LED will illuminate Green when the ECM module has sensed the proper DCV to activate the unit. **Note:** If the ECM-30 is connected to the ECS-6RM and the EVS circuit has been activated, this LED will not be lit. The Channel Status LED on the ECS-6RM will flash indicating a problem and the ECM module will not turn on until the AC Mains voltage is stable.

#### 4. AC Fault LED

If damage to the Spike Suppression circuit occurs, this LED will illuminate Red. The module may still operate but may not be protecting the items plugged into the AC outlets. The ECM module should be inspected and repaired by a qualified technician.

#### 5. Incoming AC LED

This LED will illuminate Red when the ECM has incoming AC power present at the module. This LED must be On to operate.

**Note:** If this LED is not illuminating check the following: 1) the unit is plugged in, 2) the AC Mains Breaker feeding the AC leg to the ECM module is Off, 3) the internal fuse has been damaged. This should only be inspected by an authorized technician.

#### 6. AC Mains Outlet

120V 30A L5-30 Receptacle

#### 7. AC Mains Breaker

The 120VAC 30A rated breaker will open if the combined draw of all AC outlets exceeds 30A. **Note:** The breaker is designed to exceed its rating for a short period of time. If the breaker is tripped, remove the load from the ECM-30 before pushing to reset.



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## ECM (Electrical Control Modules)

### Differences Between the ECM-20 & ECM-20M Modules

The ECM-20 & ECM-30 do not support the same current monitoring or EMI/RFI Filter feature as the ECM-20M, ECM-20SH and the ECM-15SH models. However, they do support AC Spike and Surge Suppression, AC Mains Voltage monitoring, EVS circuitry, and Remote Activation.

We suggest using an ECM-20 module instead of an ECM-20M in applications where some of the features would be redundant because of the electrical location of the module. Using a less expensive ECM module where redundant circuitry is not needed could lower the overall cost.

**Example:** One 20A incoming AC line where two sequenced AC outlets are required. Use one ECM-20M and one ECM-20 module wired in parallel. **Explanation:** If the AC Mains system required a sequenced outlet and did not require more than 20A of service for a portion of the AC power system, an ECM-20M module can be placed in parallel with an ECM-20 module. It is not necessary to have amperage readings from both ECM Modules because you can read the current from the ECM-20M Module. It is not necessary to have amperage readings from both ECM Modules if they were run in parallel because, on the same incoming AC line, they would have the same current draw. The EMI and RF filtering also is applied to both ECM modules on the same AC line leg and there is no need for redundant filtering. Note: In this wiring configuration, voltage monitoring to see if the modules are active and have extra surge protection. See ECM Module wiring configurations.

### Internal Features of the ECM Modules

- **EMI/RFI Filters** - ECM noise filtering for eliminating unwanted Radio Frequency Interference (RFI) that is commonly introduced into the AC lines by nearby radio transmitters or wireless products. EMI filters are incorporated to reduce noise from Electromagnetic Interference (EMI) from such items as electric motors, switching power supplies and lightning. The benefit of these filters can be seen on video products or audibly by reducing static pops and external signal interference.  
**Note:** Not available on ECM-20 or ECM-30 type modules.
- **AC Spike Protection** - ECM modules feature AC spike suppression. AC Spikes, or Transients, are commonly caused by lightning storms or utility power plant grid switchovers. The amount of energy that can be injected into the power system can be immense with voltages reaching 6kV or amperage peaks of 3000A. These spikes are very fast and usually only last for a very short period of time. To protect against this potential problem incoming AC Mains have special suppression circuitry to eliminate the unwanted energy. This circuitry is very fast and can suppress unwanted energy within a nanosecond, while sustaining the suppression up to 2 milliseconds, thus ensuring virtually trouble free protection.
- **AC Surge Protection** - High line can also be known as surges. Surges usually are a slower steady state rise in voltages ranging from 128VAC and up. They can be caused from fluctuations from the utility company's power lines or industrial equipment turning On/Off when on the same power leg of the building's incoming AC.
- **EVS Protection** - If an ECM Module is connected to the ECS-6RM, the ECS-6RM has built-in intelligence that monitors the AC lines from the ECM modules and will inform you of potentially damaging voltages. If the AC Mains voltage is between 128VAC and 132VAC or 107VAC and 101VAC the display will flash an error code indicating a potential fault has occurred and you should check sensitive equipment. If an extreme voltage swing occurs above 128VAC or below 101VAC, the Extreme Voltage Shutdown (EVS) protection circuit will automatically turn all remote ECM modules Off until the system is manually reset. The EVS feature can be defeated if required via the ECS-6RM EVS bypass switch. **Note:** Not available on ECM-20 type module.
- **Over Current Protection** - In the case of excessive current draw at the ECM module. An internal Slow Blow fuse will open to protect the devices that are connected to the ECM module.

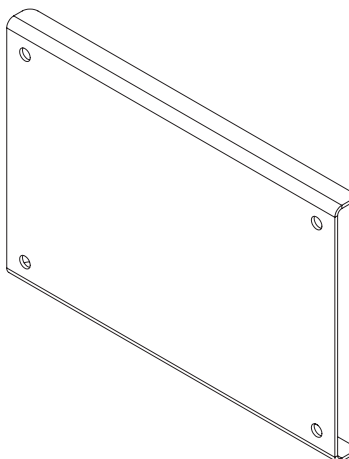


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### ECM-3BP Module Blank Cover Plate

It is not necessary to have a module installed in every slot of the ECM-RACEWY6 or the ECM-RACEWY3, however, there should be no open slots to prevent the risk of damage or serious injury. ECM Module Blank Plates can be used to cover open slots. Two blank plates are included with the ECM-RACEWY6 only. Additional Blank Plates can be purchased in packages of three. **Note:** The ECM-RACEWY1 and ECM-RACEWY3 do not include a cover plate.

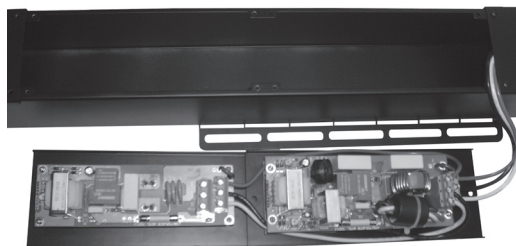
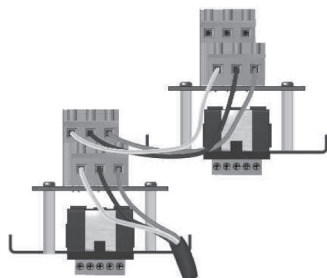


### ECM-ACIN Wire Kit

Atlas Sound offers a wire kit of stranded 12 gauge UL wire for wiring the ECM-20 Modules together plus additional length for wiring the incoming AC to an AC Mains panel. 140' (3.5m) of Green, White, and Black wire are included. As a reference, it takes approximately 1' (0.3m) of wire between ECM-20 modules. If they are wired on the same incoming AC Main, it is highly recommended that you carefully measure the wire needed for the job. It may take more than one ECM-ACIN wire kit depending on how many AC Mains are being used and the distance from the AC Mains Panel. It is not necessary to use the Atlas Sound ECM-ACIN wire kit as long as the wire used is 12 gauge and UL listed.

### Wiring the ECM Control Modules

The ECM Control Modules are designed to be paired with the ECM-RACEWY housings and the ECS-6RM controller. The specific job install AC power requirements and power distribution layout will dictate how the ECM Modules are wired into the Raceway. Each ECM Module can be wired as a single 20A or 30A run or in a parallel configuration as illustrated below. Each ECM module has dual 3-position screw terminal blocks that are in parallel and are clearly labeled as follows: E - Green = Ground, L - Black = Load, N - White = Neutral.



**Note:** The above figures show the ECM wiring configuration of one 20A AC main line coming into an ECM-20M, then paralleling with an ECM-20 type module. This can also be done with the ECM-30, however you cannot combine an ECM-20 and ECM-30 on the same circuit. **Note:** It appears that the wiring is in series but the ECM Module In/Out terminals are in parallel on the PCB.

**Note:** The ECM-20 and ECM-20M require 12 gauge wire. The ECM-30 requires 10 gauge wire.



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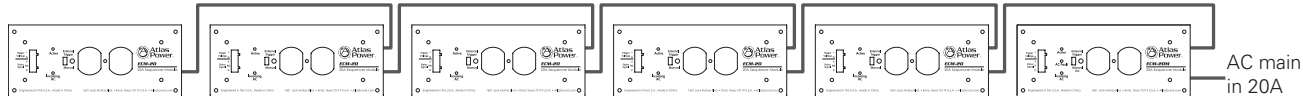


## ECM-20/ECM-20M Module System Wiring Configuration

### Example 1 - Single 20A AC Line

ECM wiring configuration showing one 20A AC main line coming into an ECM-20M then paralleling with five ECM-20 type modules.

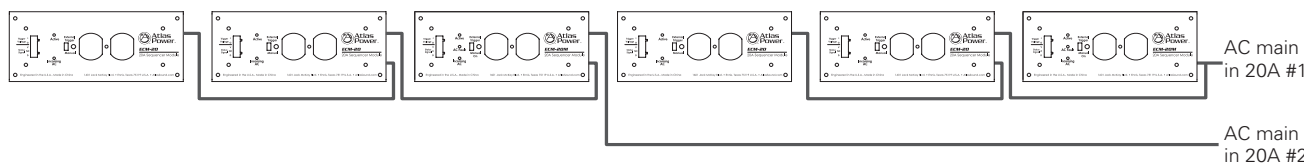
**Note:** It appears that the wiring is in series but the ECM Module In/Out terminals are in parallel on the PCB.



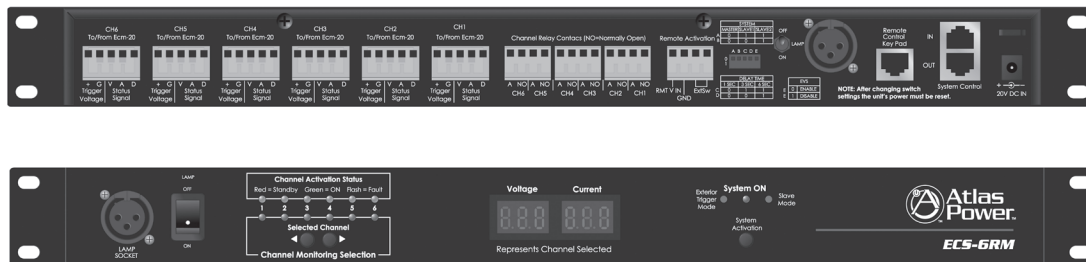
### Example 2 - Dual 20A AC Line (40A)

ECM wiring configuration showing two 20A AC main line coming into the raceway for a total of 40A available. The 20A legs are separated by feeding a 20A leg to two different ECM-20M Modules. The leg is then paralleled with two ECM-20 type modules.

**Note:** It appears that the wiring is in series but the ECM Module In/Out terminals are in parallel on the PCB.



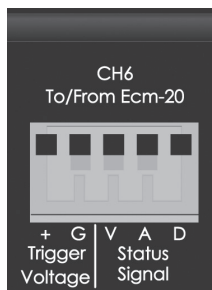
## ECM Module Connection to an ECS-6RM Controller



## ECS-6RM Control Ports for the ECM Modules

Up to six AC Main circuits can be activated or monitored by the ECS-6RM. Each ECM control port connects to one of the following ECM modules: ECM-20, ECM-20M, ECM-30, ECM-15SH and ECM-20SH. For connection between the ECS-6RM and an ECM module use a 5 conductor cable that is a minimum of 22 gauge wire. We suggest using CAT5 cable due to the common availability. Pay special attention to the port connections and **DO NOT MISS WIRE** or damage may occur. The distance between the ECS-6RM and an ECM module can be up to 1000ft.

(+) = 5VDC, G = Circuit Ground, V = AC Voltage Status Signal, A = AC Current Status Signal, D = Fault Status Signal, all signals are of low voltage and current.



Single ECM-20 Control Port

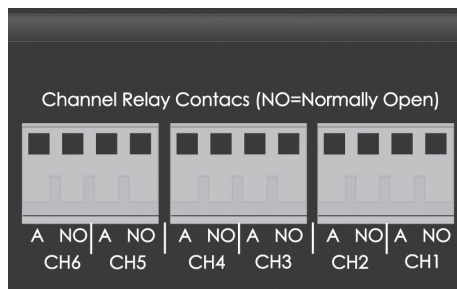


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### Activating an ECM via ECS-6RM Relay Contacts

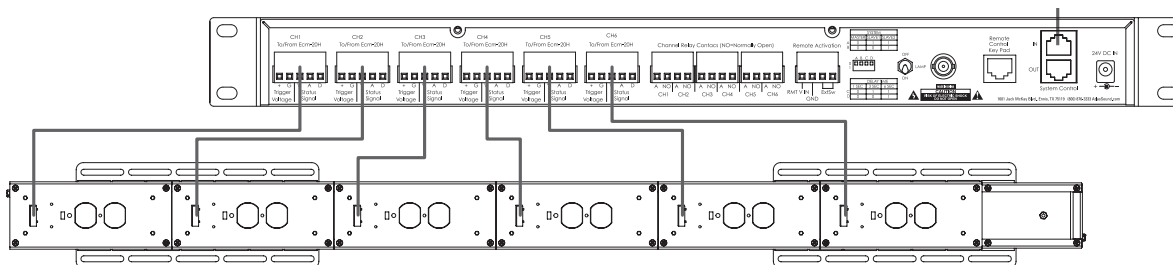
Each Channel of the ECS-6RM also has a Relay contact that works in conjunction with the ECM control port. Sequencing and timing of these connections are the same as the corresponding ECM channels. **Example:** Sequence 1 ECM Port output works at the same times CH 1 Relay contact. **Note:** All ECM modules can be trigger using the Relay contacts to activate the ECM module. See ECM module for details.



### ECS-6RM Wiring Configuration

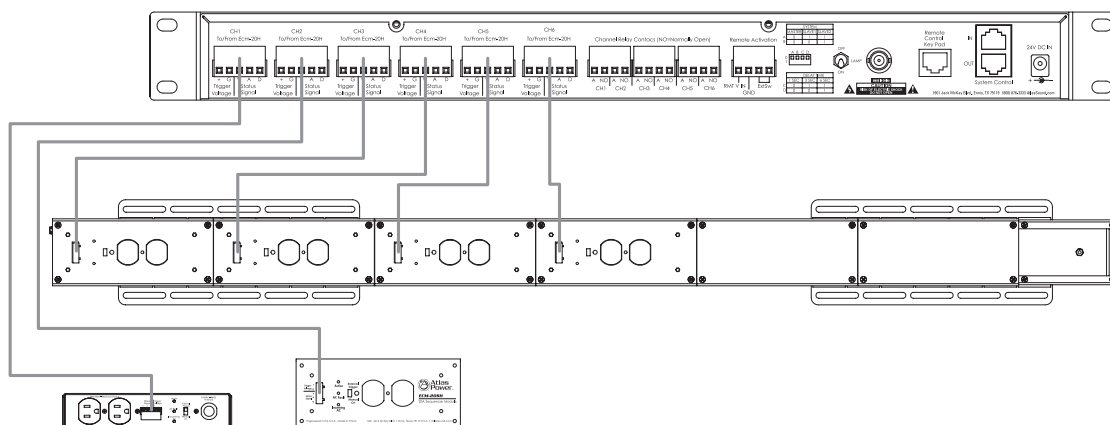
#### Example 1

ECS-6RM wired to six ECM-20 or ECM-20M Modules.



#### Example 2

ECS-6RM wired to four ECM-20 or ECM-20M Modules in the ECM-RACEWY6 and two separate ECM-15SH and ECM-20SH housings.



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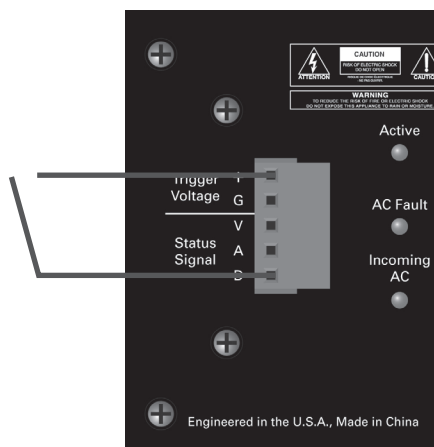
## ECM Data Wire and Distance

There are six ECM control ports on the ECS-6RM and up to six ECM Modules can be connected to the ECS-6RM. The different types of ECM Modules require the same interface connectivity to the ECS-6RM. All ECM Modules can be interchange with the ECS-6RM. For connection between the ECS-6RM and an ECM module use a 5 conductor cable that is a minimum of 22 gauge wire. We suggest using CAT5 cable due to the common availability and low cost. Pay special attention to the port connections and **DO NOT MISS WIRE** or damage may occur. The distance between the ECS-6RM and the ECM Module can be up to 1000ft.

## ECM Module Activation Without Using an ECS-6RM or an ECS-3 Controller

Any of the ECM-20, ECM-20M, ECM-30, ECM-15SH or the ECM-20SH Modules can be triggered to activate without using an ECS type Controller. Any DCV supply will activate the ECM by applying DCV 5-24VDC to the "+" and "GND" terminals. An external switch will also activate an ECM by applying a contact to short terminals "+" and "D" together. **Note:** The EVS and Voltage monitoring will be disabled using either of these methods.

The ECM can be used as standalone unit for local equipment protection. It does not need to be connected to an ECS-6RM to operate. You still get protection against AC spikes from short power surges and you get all the EMI/RFI power conditioning filtering. Without connecting to an ECS-6RM, the ECM does not utilize the Extreme Voltage Shutdown (EVS) protection and the Voltage and Current Status readings. To activate the ECM via an external contact closure or switch plate, set the slide switch to "External Trigger" and apply the contacts across terminals "+" and "D" shorting them together.



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## **ECM Troubleshooting**

**Note: ALL TROUBLESHOOTING SHOULD BE DONE BY A CERTIFIED ELECTRICIAN**

**Issue 1** - Incoming AC LED is not illuminated.

**Possible Cause 1**

Incoming AC Mains circuit breaker has tripped due to excessive load.

**Action Needed**

Check the AC outlet that the ECM is plugged into for 120V AC voltage. If no voltage is present, check to see if the AC outlet is on a GFI that has been tripped. If it has not been tripped, trace the AC Mains outlet back to the electrical panel and check the AC Mains breaker to see if it is tripped.

**Possible Cause 2**

If the AC Mains is correct (120V), internal 15A (ECM-15SH) and 20A (ECM-20, ECM-20m, ECM-20SH) Slow Blow fuse is blown.

**Action Needed**

Open ECM unit and replace the fuse with a Slow Blow type.

**Issue 2** - AC Fault LED is illuminated.

**Possible Cause**

Although the Clamping Suppression circuit virtually assures protection from most transient voltage spikes and surges, nature has a way of occasionally creating electrical forces that are beyond the capabilities of any device to absorb without some degree of damage. In the rare instance that this occurs, the clamping circuit can be damaged during the suppression.

**Action Needed**

The unit will need to be repaired or replaced. It is important to have all equipment that was connected to that AC Mains Line to be inspected for proper operation.

**Issue 3** - ECM Active LED is not illuminated.

**Possible Cause**

Manual slide switch is not set to On.

**Issue 4** - Unit is set to External Trigger, the Incoming AC LED is illuminated but the Active LED is not illuminated.

**Possible Cause 1**

External Switch is not connected across the "D" and "+" terminals.

**Possible Cause 2**

External DCV is not connected across the "+" and "G" terminals.

**Possible Cause 3**

External DCV voltage polarity is not correct across the "+" and "G" terminals.

**Possible Cause 4**

External DCV voltage is too low to activate the trigger circuit. Must be a minimum of 5vDC.



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Type	Housing for ECM-20 or ECM-20M modules
------	---------------------------------------

Number of ECM Modules	Up to Six (ECM-RACEWY6) Up to Three (ECM-RACEWY3) One (ECM-RACEWY1)
Blank Module Plates	Qty. 2, Included (ECM-RACEWY6 Only)
Electrical Inlets	Qty. 4
Electrical Inlet Size	½" and ¾" Dual Knockout
Chassis Finish	Black Paint
Height	5.55" (14.1cm)
Width	56.5" (143.5cm) (ECM-RACEWY6) 30.75" (78.11cm) (ECM-RACEWY3) 13.77" (34.98cm) (ECM-RACEWY1)
Depth	3.66" (9.3cm)



### ECM-20/ECM-20M Specifications

Type	Power Conditioner Suppressor Module
RoHS Compliant	Yes
Safety Listings	MET (UL 1449 Code)

#### Front Panel

Outlets	Qty. 2, Switched
Manual Override	Slide Switch
Connector	5 Position Phoenix Euro Block Style
Indicators	Incoming AC, Active, AC Fault (ECM-20M Only)
AC Mains Interconnect	Screw Block Terminal

#### Technical Data

Current Rating	15A
Operating Voltage	102VAC - 132VAC
Power Consumption	500 milliwatts
Power Requirements	120V 60Hz
Extreme Voltage Shutdown (EVS)	Below 102V or Above 132V AC Line (When Used With ECS-6RM) (ECM-20M Only)
Fuse Protection	20A Slow Blow
DCV Remote Trigger	5 - 24VDC
Remote Trigger	SPST Contact
Status Signals	Output for Voltage and Current Data (ECM-20M Only)
High Voltage Surge Protection	Trigger at 133VAC, 1ms Typically (When Used With ECS-6RM) (ECM-20M Only)
Spike and Surge Protection	H-N, N-G, H-G
Low Voltage Protection	Trigger at 101VAC, 1ms Typically (When Used With ECS-6RM) (ECM-20M Only)
Spike Protection Modes	Circuitry on Incoming AC Mains
Min. Spike Clamping Voltage	460 VRMS @ 3,000 amps
Max. Spike Clamping Voltage	6KV
Max. Spike Clamping Resp. Time	<1 nanosecond
Spike Clamping Voltage @ 100A	1,250Vp for 20μs
Maximum Surge Current	6,500A
Energy Rating @ 2ms	600 Joules
Noise Attenuation EMI/FRI	10dB @ 10kHz, 40dB @ 100 kHz, 100dB @ 10 MHz (ECM-20M Only)
Temperature Range	5° - 35°C
Humidity Range	5% to 95% R.H.

#### Mechanical

Chassis Finish	Black
Mounting	# 8 5/16" Self Tapping Screws
Height	3" (7.6cm)
Length	8.5" (21.59cm)
Width	3.5" (8.89cm)
Weight	1.25 lbs (.68kg) (ECM-20) 1.75 lbs (.80kg) (ECM-20M)



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## ECM-30 Specifications

Type	Power Conditioner Suppressor Module
RoHS Compliant	Yes
Safety Listings	UL 1449

### Front Panel

Outlet	Single 30A, L5-30
AC Mains Circuit Breaker	30A Resettable
Indicators	Active (Green), Fault (Red), Incoming AC (Red)
External Trigger/Manual On	Slide Switch
Connectors	5 Position Phoenix Euro Block Style
Hard Switch Remote Trigger	SPST Contact
Status Signals	Output for Voltage (When used with ECM-6RM)
AC Mains Interconnect	Screw Terminal Block

### Technical Data

Current Rating	30A
Operating Voltage	102VAC - 132VAC
Power Consumption	500 milliwatts
Power Requirements	120V 60Hz
Extreme Voltage Shutdown	(EVS) Below 102V or above 132V AC Line (When used with ECM-6RM)
DCV Remote Trigger	5-24DCV
High Voltage Surge Protection	Trigger at 133VAC, 1ms typically (When used with ECS-6RM)
Low Voltage Surge Protection	Trigger at 101VAC, 1ms typically (When used with ECS-6RM)
Spike and Surge Suppression	Hot to Neutral, Hot to Ground, Neutral to Ground
Spike Protection Modes	Circuitry on Incoming AC Mains
Min. Spike Clamping Voltage	460 VRMS @ 3,000 amps
Max. Spike Clamping Voltage	6kV
Max. Spike Clamping Resp. Time	<1 nanosecond
Spike Clamping Voltage @ 100A	1,250Vp for 20μs
Maximum Surge Current	6,500A
Energy Rating	600 Joules
Temperature Range	5° – 35°C
Humidity Range	5% to 95% R.H.

### Mechanical

Chassis Finish	Black
Mounting	#8 5/16" Self Tapping Screws
Height	3" (76.2mm)
Width	3.5" (88.9mm)
Length	8.5" (215.9mm)
Weight	1.25 lbs (0.68kg)



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### **Limited Warranty**

All products manufactured by Atlas Sound are warranted to the original dealer/installer, industrial or commercial purchaser to be free from defects in material and workmanship and to be in compliance with our published specifications, if any. This warranty shall extend from the date of purchase for a period of three years on all Atlas Sound products, including SOUNDOLIER brand, and ATLAS SOUND brand products except as follows: one year on electronics and control systems; one year on replacement parts; and one year on Musician Series stands and related accessories. Additionally, fuses and lamps carry no warranty. Atlas Sound will solely at its discretion, replace at no charge or repair free of charge defective parts or products when the product has been applied and used in accordance with our published operation and installation instructions. We will not be responsible for defects caused by improper storage, misuse (including failure to provide reasonable and necessary maintenance), accident, abnormal atmospheres, water immersion, lightning discharge, or malfunctions when products have been modified or operated in excess of rated power, altered, serviced or installed in other than a workman like manner. The original sales invoice should be retained as evidence of purchase under the terms of this warranty. All warranty returns must comply with our returns policy set forth below. When products returned to Atlas Sound do not qualify for repair or replacement under our warranty, repairs may be performed at prevailing costs for material and labor unless there is included with the returned product(s) a written request for an estimate of repair costs before any nonwarranty work is performed. In the event of replacement or upon completion of repairs, return shipment will be made with the transportation charges collect.

EXCEPT TO THE EXTENT THAT APPLICABLE LAW PREVENTS THE LIMITATION OF CONSEQUENTIAL DAMAGES FOR PERSONAL INJURY, ATLAS SOUND SHALL NOT BE LIABLE IN TORT OR CONTRACT FOR ANY DIRECT, CONSEQUENTIAL OR INCIDENTAL LOSS OR DAMAGE ARISING OUT OF THE INSTALLATION, USE OR INABILITY TO USE THE PRODUCTS. THE ABOVE WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES INCLUDING BUT NOT LIMITED TO WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

Atlas Sound does not assume, or does it authorize any other person to assume or extend on its behalf, any other warranty, obligation, or liability. This warranty gives you specific legal rights and you may have other rights which vary from state to state.

### **Service**

Should your Atlas ECM-RACEWY, ECM-20, ECM-20M, or ECM-30 require service,  
please contact the Atlas Sound warranty department at  
1-877-689-8055, ext. 277 to obtain an RA number.

Atlas Sound Tech Support can be reached at 1-800-876-3333.

Visit our website at [www.AtlasSound.com](http://www.AtlasSound.com) to see other Atlas products.

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